BIT254-2080 ✡

Tribhuvan University
Institute of Science and Technology
2080
✡

Bachelor Level / Second Year/ Fourth Semester
Bachelors in Information Technology (BIT 254)
(Network and Data Communications)

Full Marks: 60
Pass Marks: 24
Time: 3 hours

Candidates are required to give their answers in their own words as for as practicable.
The figures in the margin indicate full marks.

Section A

Long Answer Questions
Attempt any TWO questions. **(2 × 10 = 20)**

1. Differentiate between noise and attenuation. A pure ALOHA network transmits 200 bit frames using shared channel with a 50 kbps bandwidth. What is the requirement to make this frame collision free? (3+7)
2. What is Congestion Control? How can it be handled? Explain acknowledgement policy and discarding policy. (2+2+6)
3. What are the practical implications of OSI layer? Define each layer focusing on its functionality and hardware used in each layer. (2+8)

Section B

Short Answer Questions.
Attempt any EIGHT questions **(8×5=40)**

4. Explain leaky-bucket algorithm with an example. (5)
5. Represent bit sequence 100011001 by the following wave form (5)
   a. NRZ-L
   b. NRZ-I
6. Explain link state routing protocol with an example. (5)
7. Explain recursive resolution. What are its advantages? (3+2)
8. Calculate the transmitted encoded frame if the message sequence is 10010001 and generator polynomial is $G(X) = x^2 + x + 1$ (5)
9. Explain the concept of TDMA with a neat diagram. (5)
10. What is circuit switching? What are its advantages and disadvantages? (3+2)
11. What is the difference between DNS and DHCP? Explain with example. (5)
12. Write short notes (2×2.5=5)
    a. Reliable Protocol
    b. Satellite Network